REMARKS/ARGUMENTS

Claims 1-16 are presented for reconsideration and further examination in view of the foregoing amendments and following remarks. By this Response, claims 1, 2, 10, 14 and 16 are amended for clarification purposes only and in ways that do not narrow claim scope or prejudice the amended claims. Reconsideration and prompt allowance of the claims are respectfully solicited in view of the above amendments and the following remarks.

Objections

The Office Action objects to the Specification stating that the term "remote sender" is not sufficiently defined. In response, Applicant respectfully points to par [0048], which states that a "remote sender can be a PC delivering data (or files that the server of the disclosure refers to as plain data)" noting that the breadth of the term can be much broader in lieu of the knowledge of one of ordinary skill in the art. With respect to Fig. 5 (and respective text), the non-limiting example refers to data providers 69 and 68 in a symmetric network - each capable of providing the role of a remote sender. Accordingly, withdrawal of the objection is respectfully requested.

The Office Action objects to claims 1 and 16, upon which such claims are amended in response to obviate the objections. Accordingly, withdrawal of the objections is respectfully requested.

The Office Action rejects claim 2 under 35 USC §112, first paragraph. In response, claim 2 is amended to obviate the rejection. Accordingly, withdrawal of the objection is respectfully requested.

The Office Action rejects claim 10 under 35 USC §112, second paragraph. In response, claim 10 is amended to obviate the rejection. Accordingly, withdrawal of the objection is respectfully requested.

The Claims are directed to Patentable Subject Matter

The Office Action rejects claims 1, 5, 7-11 and 14-16 under 35 USC §102(b) over Fallon (U.S. Pat No. 6,597,812); rejects claims 2-3 under 35 USC §103(a) over Fallon in view of Harlan (U.S. Pat No. 6,076,084); and rejects claim 6, 12 and 13 under 35 USC §103(a) over Fallon. These rejections are respectfully traversed.

Background

The present disclosure relates to a method and systems for ***synchronizing*** between ***anonymous*** contents of data streams currently ***passing through communication server*** and between ***similar*** contents that ***have already been passed through said servers and stored locally,*** such that transportation of certain amounts of said streaming data may be eliminated. A system of the present disclosure comprises ***at least one server capable of reducing volumes of network transportation*** in-line as a result of self initiated procedures which require no information concerning the source of the data, its type, its name, or any other of its identification details, in order to achieve volume reduction). For further use of certain portions of the data streams passing through the server, said server stores such portions of the data without being aware of file names, wholeness of data, URLs, file types, and data origin or destination. According to the present disclosure only pure data is stored by the server, with no ID tags received from external file requestors or file providers (page 4, lines 2-28). According to the present disclosure, ***the server comprises an anchor determination unit*** capable of ***determining locations in the data streams where predefined groups of characters from the stream fulfill a predetermined criteria,*** the locations of such groups are determined as anchors (page 5 lines 1-4). The server also comprising a replacement unit for ***replacing pieces of data from intended incoming data streams*** to be received from a remote sender by identical data pieces retrievable ***from a data storage*** accessible thereto, according to

references supplied by the remote sender (page 10, lines 10-19; page 17, line 18 to page 19, line 7).

According to the present disclosure, ***the need in providing a dictionary that represents words (data) can be eliminated. Instead, a table with anchors and data blocks, in which they were found, is provided.*** It should be noted that the compression occurs inside each data block, and it may be performed by any (compression) algorithm. ***The data is partitioned into blocks, and each block is stored and referenced separately.*** This allows deleting blocks by different techniques, such as deleting the last recently used block (LRU block) rather than the oldest block. Also, the present disclosure ***teaches aggregating each session into blocks, where the end of the block is determined by an anchor*** (thus, performing data synchronization) or by a maximum size; thus, no outer-fragmentation is performed. ***According to the present disclosure, an anchor is a technique to synchronize a stream of numbers without using metadata*** (e.g., without placing indications within the data string showing wherein the data begins) (page 13, lines 25 to page 14, line 2; page 14, line 25 to page 15, line 11; page 8, lines 23-31; page 19, line 16 to page 20, line 17, etc.). According to an embodiment of the present disclosure, for example, defining anchors in a data stream is choosing an anchor to be at each location in the stream, wherein the string "abc" appears or wherein a 9-bit hash of 5 consecutive bytes is equal to zero (page 14, lines 28 to page 15, line 2).

In addition, according to the present disclosure, a communication server learns the data as it reads packets belonging to the stream from the communication line. The stream being learned is to be partitioned into data blocks. The size of a block is independent of the packet size. As packets of a stream are read from the network, and the data is copied into a data block. ***The ending position of a block and the beginning of the next block in a stream is determined by anchors.*** Through the use of anchors, block partitioning becomes dependent of its content (since the anchor is determined as a function of the contained data), and thus blocks containing identical data will more likely be found over the network as

being identically partitioned, while partitioning of fixed sized blocks may occasionally be changed since no inherent rule determines their partitioning (page 13, lines 17 to page 14, line 2).

Further, according to the present disclosure, upon receiving a packet, it is being searched for an anchor, and when found, ***a digital signature is computed by a hash function returning a hash value,*** for example, from the 100 bytes ***following the anchor*** (page 16, lines 27-29). The digital signature value is then searched for in an array storing block IDs. This array also stores the location in the cache in which the block is stored. ***In case a match occurs between the digital signature value and a value of any one of the block IDs, the block associated with the matching block ID is fetched from the cache.*** After fetching the block into memory, the dictionary can be used to find large substrings of the packet in the block, which are identical to corresponding substrings in the currently received packet. Such substrings can then be deleted from the packet and replaced by references to the block. An ADC server who receives such processed packet may retrieve said deleted parts of the packet from its local cache, and thus the volume of the transmitted data is reduced in accordance with the volume of the deleted substrings (page 16, line 27 to page 17, line 7).

Comparison to Applied Art of Record

In contrast, Fallon (US 6,597,812) is directed to systems and methods for providing lossless data ***compression and decompression***. Also, Fallon exploits characteristics of ***run-length encoding, parametric dictionary encoding, and bit packing to comprise an encoding/decoding process*** having an efficiency that is suitable for use in real-time lossless data compression and decompression applications (col. 3, lines 5-11; col. 4, line 64 to col. 5, line 65). However, ***Fallon relates to a compression server that uses three conventional compression techniques: Run-Length-Encoding (RLE), Huffman encoding and a technique for replacing strings with a shorter encoding*** (a variation of conventional

Lempel-Ziv encoding); ***RLE encoding is a technique to replace a string, consisting of a repeating single character, with two symbols*** where the first symbol describes the repeating letter, and the second symbol describes a number of times this letter is repeated. Further, Fallon does not teach implementing a technique of the present disclosure for using anchors ***to synchronize a data stream without using metadata*** (e.g., without placing indications within the data string showing wherein the data begins).

Further, it should be noted that the compressor of Fallon ***needs to keep the same dictionary as the decompressor.*** If it does not so, it would not be able to generate a relatively short representation that would be understandable by the decompressor (col. 5, line 66 to col. 6, line 63).

In contradistinction, according to the present disclosure, the decompressor uses out of bound information (such as a TCP sequence number) to reconstruct data, which was not sent by the remote sender. Thus, Fallon does not disclose or suggest each and every limitation of the independent claims.

Harlan is directed to the transmission of a file to a computer where the receiving computer has a file (called the old file) that is related to the file being transmitted (called the new file), but where the sending computer does not know the status or content of the old file. According to Harlan, one of the computers generates a Delimiter Selection Profile Table (DSPT). Either the receiving computer generates a DSPT of the old file or the sending computer generates a DSPT of the new file. Next, using the information in the DSPT, ***one of the delimiters is chosen as the delimiter, which will be used and this delimiter is transmitted to the computer, which did not generate the DSPT. The receiving computer next generates a Segment Profile (SPT) of the old file and the sending computer generates an SPT the new file.*** The SPT is generated by calculating a hash code (such as a CRC) for each segment which is defined by the selected delimiter. The hash codes from the old file are transmitted to the sending computer. The sending computer then sends to the receiving computers those segments in the new file that do not have a hash code number which matches one of the hash code numbers from the old

file. The sending computer also sends an indication of where segments from the old file should be inserted into the new file. The receiving computer then constructs the new file from the segments received from the appropriate old segments (col. 1, line 42 to col. 2, line 4; col. 2, line 47 to col. 3, line 12).

Further, according to Harlan, ***a single character is used as a segment separator.*** Additionally, Harlan teaches iterating over possible characters to find the best segment partition. However, as with Fallon, Harlan neither teaches providing ***a table with anchors and data blocks, in which they were found,*** nor it teaches aggregating each session into blocks, wherein ***the end of each block is determined by an anchor*** (thus, performing data synchronization). Harlan does not teach implementing a technique of the present disclosure for using anchors ***to synchronize a data stream without using metadata*** (e.g., without placing indications within the data string showing wherein the data begins).

Accordingly, Harlan does not provides for the deficiencies of Fallon, and in conclusion none of the applied art of record discloses, teaches, suggests either providing ***a table with anchors and data blocks, in which they were found,*** or aggregating each session into blocks, wherein ***the end of each block is determined by an anchor in order to synchronize a data stream without using metadata*** (e.g., without placing indications within the data string showing wherein the data begins).

CONCLUSION

In light of the foregoing, Applicant submits that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicant respectfully requests that the Examiner contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

In the event this paper is not timely filed, Applicant petitions for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,

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